SECTION 2.1 SITE DESCRIPTION
(WAC 463-42-125)

2.1.1 LOCATION OF PROJECT

The proposed Cross Cascade Pipeline will originate on Olympic Pipe Line Company's (OPL) existing north/south lines approximately two miles north of the King-Snohomish county line. The pipeline will extend to the east, crossing Snoqualmie Pass into Kittitas County generally following the I-90 corridor, then cross the Columbia River in the vicinity of the Wanapum Dam into Grant County, before turning south to terminate at Northwest Terminalling Company's existing terminal in Pasco, Washington. See Figure 2.1-1 for a general project vicinity map.

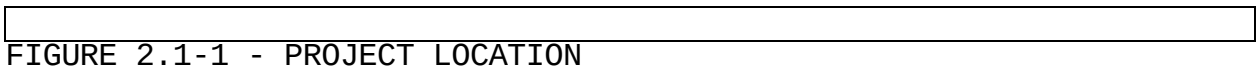

FIGURE 2.1-1 - PROJECT LOCATION

Appendix A to this application includes aerial photographs and resource maps of the route in approximately 2.7 mile segments. The resource maps include major public landowners, land uses, cultural resources, streams, wetlands, and geologic conditions for the pipeline corridor, and the location of the five pump stations and the Kittitas Distribution Terminal.

2.1.2 ROUTE DESCRIPTION

Proposed Route

The proposed pipeline route traverses several types of terrain and land uses; many areas of the pipeline route consist of existing disturbed rights-of-way, while other areas will require the acquisition of new rights-of-way. The impacts of the pipeline will vary, depending upon the amount of previous disturbance and other factors. For the purposes of description, the pipeline route, which is approximately 230 miles long, has been divided into numbered segments based on criteria such as the amount of previous disturbance, whether extensive clearing will be required, and significant changes in land use from one area to another. The route is described below by mile post (MP) segments. See the maps included in Appendix A for mile post markers.

As shown in the Map Atlas (Appendix A), many areas of the corridor are proposed to be within Bonneville Power Administration (BPA) right-of-way. The BPA right-of-way exists by non-exclusive easement from the underlying property owners. OPL is negotiating with those same property owners to secure a similar easement. BPA's rights are limited to protecting and ensuring non-interference with the operation of its facilities. OPL has entered into an agreement with BPA to evaluate and establish conditions for joint use of the existing cleared area. OPL's proposed alignment is based upon staying within the existing cleared right-of-way except for those corridor segments that are clearly marked as "new right-of-way". The basic rule is that the pipeline must be 50 feet from the base of BPA's steel structures and 25 feet from the base of BPA's wooden structures. In most locations there is adequate space to meet this requirement without going outside of the existing cleared area. There are a number of locations where it will be necessary to be closer to the structures in order to stay within the cleared area or to satisfy landowner requirements. In those cases, BPA has requested that OPL gather soil resistivity data in order to determine whether any modifications to BPA's facilities are needed to ensure that the resulting installation is electrically safe. OPL is currently gathering this site specific data. Any modifications to BPA's facilities would likely involve some additional grounding of the BPA structure and would be done by BPA at OPL's expense. It is OPL's intent to have this work done if necessary rather than to clear additional vegetation.

Approximately 109 miles, or 47% of the proposed route, will be located within existing cleared right-of-way. Approximately 56 miles, or 24%, will be located immediately adjacent to existing cleared corridors. These areas are primarily roadways where existing utilities or roadway construction precluded placing the pipeline within the existing right-of-way. Approximately 29%, or 66 miles, will be located in new

corridors. These areas are generally required for connecting segments between segments of existing right-of-way.

Table 2.1-1 provides a summary of this information by county:

TABLE 2.1-1
SUMMARY OF RIGHT-OF-WAY REQUIREMENTS BY COUNTY
(miles)

County	New Corridor	Adjacent to Existing Corridor	Inside Existing Corridor	Total Mileage
Snohomish	2.0	0.0	12.0	14.00
King	3.5	3.5	36.5	43.50
Kittitas	39.0	6.5	47.0	92.50
Grant	9.0	21.5	0.0	30.50
Adams	1.5	6.4	1.5	9.40
Franklin	11.0	18.0	12.1	41.10
Total	**66.00 miles**	**55.90 miles**	**109.10 miles**	**231.00 miles**

Alternative Routes in the Vicinity of the Columbia River

After the February 1996 submittal of the Application for Site Certification, alternative routes for the segment immediately west of the Columbia River were identified as a result of discussions with agency land owners and the public. Whereas the original route included in the February 1996 application was located on the Yakima Training Center to the south of I-90, the proposed route is now located on the north side of I-90 and crosses a portion of the Gingko State Park. The original route, the proposed route, and other alternatives that were studied are shown on Figure 2.1-2.

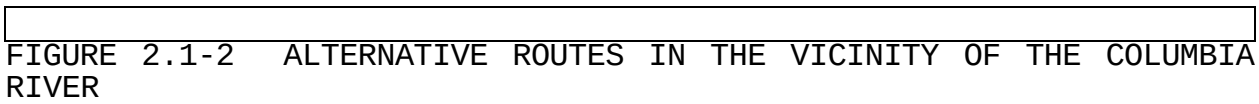

FIGURE 2.1-2 ALTERNATIVE ROUTES IN THE VICINITY OF THE COLUMBIA RIVER

Segment 1
Snohomish County

MP 0 to MP 8.15

Urban and Rural Residential. Segment 1 begins with a 14" pipe and the construction of a pump station (Thrasher Station), located on 46th Avenue north of 212th Street SE and north of OPL's existing Woodinville Station. With the exception of the descent down to the Snoqualmie River, this segment lies within existing Bonneville Power Administration (BPA) transmission line right-of-way. Near the Snoqualmie River, the proposed right-of-way deviates from the BPA corridor and traverses northeasterly to the Snoqualmie River to cross the river on an existing Snohomish County-owned highway bridge. In this segment, the construction corridor will be 60' wide and an operation corridor of 30' will be maintained.

Land use on either side of the pipeline route is suburban residential, changing to rural residential in the Maltby area before descending to the Snoqualmie River. East of Highway 522, the proposed route passes through the Echo Falls Country Club.

Major road crossings include Highway 524 (Maltby Road), Highway 9, Highway 522, Echo Lake Road, Welch Road, and High Bridge Road.

Major stream and wetland crossings are limited to Little Bear Creek and associated wetlands. The overall topography is gently rolling, except where the proposed right-of-way descends into the Snoqualmie River Valley.

Segment 2
Snohomish County

MP 8.15 to MP 9.3

Agricultural. Segment 2 begins at the west side of the Snoqualmie River and crosses the Snoqualmie River Valley. This portion of the route will be within a new corridor, and is comprised of agricultural land within the floodplain of the Snoqualmie River. There will be a 60' construction corridor in this segment. Because the land is used for agriculture, there will be no maintained corridor. The proposed pipeline will be located in an existing utilidor (utility box) under an existing bridge.

The proposed route crosses High Bridge Road on the west side of the Snoqualmie River.

Segment 3
Snohomish County

MP 9.3 to MP 11.9

Rural Residential and Forest. Segment 3 lies within the BPA right-of-way in a rural residential area and second-growth forest except for a portion of approximately 1/2 mile. This portion is a combination of new corridor and roadway rights-of-way. The proposed route ascends the east side of the Snoqualmie River Valley and climbs from an elevation of approximately 100' above sea level to approximately 1,300' at Mile Post (MP) 11.9. Construction within the right-of-way will be 60' with a maintenance corridor of 30'.

This segment crosses State Highway 203 approximately 4 miles north of Duvall. As the route ascends the uplands it crosses High Rock Road.

The proposed route crosses Peoples Creek in this segment.

Segment 4
Snohomish County

MP 11.9 to MP 13.0

Forest and Rural Residential. At Segment 4 (MP 11.9), the proposed pipeline route leaves the BPA right-of-way and crosses an area of regenerating forest that includes some rural residential areas. In this area there will be a 60' cleared construction corridor and a maintained operational corridor of 30' through the regenerating forest.

At MP 12.75 the segment rejoins the BPA corridor. Although the construction corridor will remain at 60', there will be no new maintenance impacts since the route is within the BPA maintained corridor.

From MP 13.00 to the end of Segment 4 at MP 13.25, the proposed pipeline right-of-way will be located in an existing 10 to 20' wide forest road. Construction will occur only within the road and no additional area will be cleared. Maintenance over the pipeline will be limited to keeping overhead trees and branches clear for aerial observation.

Segment 5
Snohomish/King Counties

MP 13.0 to MP 21.00 **Rural Residential.** Segment 5 begins just north of the Snohomish/King County line, rejoining the BPA right-of-way northeast of Harts Swamp. The route turns to the southeast following the BPA right-of-way and crosses the City of Seattle's Tolt River Pipeline at 322nd Avenue. A 60' wide construction area will be limited to the BPA corridor; there will be no maintenance impacts, as the pipeline is within the maintained BPA corridor.

This segment crosses Mountain View Road, Kelly Road, and Lake Joy Road.

Major stream crossings in this area include Cherry Creek and Harris Creek. The crossing at Harris Creek includes a Category I wetland area (at MP 13.2).

Segment 6
King County

MP 21.0 to MP 23.45 **Forest.** In Segment 6, the pipeline route lies within a 15' to 20' wide private forest road right-of-way through second- and third-growth forest. Construction will be limited to the width of the road.

Segment 7
King County

MP 23.45 to MP 25.20 Forest. Segment 7 leaves the roadbed and begins at an approximate elevation of 450'; the route makes a descent to the Tolt River to an elevation of approximately 120', crosses the Tolt River, then ascends the south side of the Tolt River up to an approximate elevation of 560'. This segment will require new right-of-way through second and third growth forest. This area is currently commercial forest land, but much of it has been converted to residential subdivisions that are as yet largely undeveloped. Construction of the pipeline will require clearing a 60' wide corridor and maintenance of a 30' corridor for operations.

This segment crosses Tolt River Road NE and the Tolt River.

Segment 8
King County

MP 25.20 to MP 25.90 Forest. Segment 8 lies within a 10 to 15' private forest road right-of-way through harvested and young forest. In this area the construction will be limited to the roadbed and no maintained corridor will be required during operation of the pipeline.

Segment 9
King County

MP 25.90 to MP 26.8 **Forest.** At Segment 9, the pipeline route rejoins the BPA right-of-way through previously harvested forest areas.

Segment 10
King County

MP 26.8 to MP 27.15 **Forest.** Segment 10 remains within the BPA right-of-way, but this segment has been identified separately because it will require clearing of forest land where transmission lines run between towers spanning Griffin Creek. This segment includes the crossing of Griffin Creek.

Segment 11
King County

MP 27.15 to MP 28.05 Forest. Segment 11 lies within BPA right-of-way and crosses forest land.

Segment 12
King County

MP 28.05 to MP 31.7 **Forest.** Segment 12 enters a private forest road and follows forest land south to a ridge above Tokul Creek. In this segment, no additional clearing will be required, and because the route will follow an existing road, no operational corridor will be maintained except for the purpose of keeping tree branches from obscuring the route from aerial surveillance.

Segment 13
King County

MP 31.7 to MP 32.1 **Forest and Rural Residential.** This segment begins at an elevation of approximately 800' and descends to Tokul Road. There are some residences in the vicinity of the proposed pipeline route along Tokul road. A new 60' wide construction corridor will be cleared and a 30' wide operational corridor will be maintained. The corridor has been planned to avoid any potential old-growth forest and residences.

The proposed route will be supported from the existing bridge over Tokul Creek (elevation approximately 500')

Segment 14
King County

MP 32.1 to MP 33.7 **Rural Residential and Industrial.** Segment 14 begins where the proposed pipeline route intersects SE 53rd Way, and then follows SE 53rd Way and Fall Station Road (396th Avenue), a paved county road. This segment passes by the Weyerhaeuser Snoqualmie Lumber Mill. Due to the narrowness of the right-of-way, the proposed route will be in the ditch of the road on the uphill side. Construction will be limited to the roadside, and there will be no operational corridor maintained other than tree branch removal to maintain visual aerial surveillance.

The proposed route in this segment will cross Fall Station Road and for a short distance will require new right-of-way before the segment ends at an abandoned railroad bed on Weyerhaeuser property.

Segment 15
King County

MP 33.7 to MP 41.05 **Recreation, Urban, Suburban and Rural Residential, and Commercial**. Segment 15 begins where the proposed pipeline enters the Cedar Falls Trail, an abandoned railroad bed, north of the Snoqualmie River. The Cedar Falls Trail is constructed on an old railroad grade and the pipeline will be constructed within this railbed. The trail surface is owned and maintained by King County. The proposed route crosses the Snoqualmie River (MP 34.15), follows the Cedar Falls Trail southeasterly through the Mount Si Golf Course (MP 35), and enters the city

limits of North Bend (MP 35.25). The proposed pipeline will stay within the trail right-of-way, crossing over the South Fork Snoqualmie River on an existing railroad/trail bridge. After passing through the North Bend residential area, the proposed pipeline route goes through rural residential areas north of North Bend Way and south of the Middle Fork Snoqualmie River.

At approximately MP 37.3, a pump station will be constructed on approximately 1.06 acres. This location is bordered on the north by the Cedar Falls Trail. This is an area that is converting from rural to suburban.

The proposed pipeline will continue southeast on the trail, under I-90, and again cross the South Fork Snoqualmie River near MP 39.3 on the existing railroad bridge near suburban residential areas.

This route will cross several streets in North Bend. The proposed route will also go under I-90 at an existing underpass for the old railroad. The route will cross existing bridges, once over the Snoqualmie River and twice over the South Fork Snoqualmie River.

Clearing of a construction corridor will not be necessary in this segment, as it will stay entirely within the boundaries of the Cedar Falls Trail. There will be no maintenance requirements because it is currently maintained as a trail.

Segment 16
King County

MP 41.05 to MP 42.5 **Forest and Rural Residential.** Segment 16 leaves the King County Cedar Falls Trail and follows Edgewick Road and private roads through forested and rural residential areas. The proposed route gains elevation in this segment, passing through Twin Falls State Park and ascending the flanks of Mount Washington to intersect with the John Wayne Trail (JWT), owned and operated by Washington State Parks.

When possible, the proposed route will stay within cleared rights-of-way; however, there may be the need to clear some additional areas for construction. At the east end of this segment there are no existing rights-of-way available and a 60' wide construction corridor will be cleared. The operational corridor will be maintained at varying widths, ranging from 20 to 30'.

Affected roads in this segment include private roadways and Edgewick Road.

Boxley Creek is the only major stream crossing in this segment.

Segment 17
King County

MP 42.5 to MP 43.9 **Forest and Recreation.** Segment 17 begins where the route intersects the JWT, the old railbed of the Chicago, Milwaukee, and St. Paul Railroad. This segment ends near the western boundary of Olallie State Park. Surrounding land uses are forest land and recreation. Twin Falls and Olallie State Parks to the north are popular hiking areas. No clearing for a construction corridor is required in this segment.

Segment 18
King County

MP 43.9 to MP 45.9 **Forest and Recreation.** In Segment 18 the route leaves the JWT and descends a short distance to a paved state highway (Homestead Valley Rd.) which parallels I-90. This segment of the proposed route passes south of Olallie State Park. The proposed route is adjacent to I-90 near Exit 38. Minor clearing for construction may be required where the proposed route descends a short distance to intersect the county road.

The pipeline will be buried along the shoulder of the road, and thus no additional clearing is anticipated in this portion of the segment. At the east end of the segment the proposed route ascends a short distance to again intersect the JWT near the old Garcia railroad camp.

Segment 19
King County
U.S. Forest Service
Mt Baker-Snoqualmie National Forest (MBSNF)

MP 45.9 to MP 48.9 **Forest and Recreation.** This segment begins where the proposed route leaves the paved state highway. Construction will occur in an existing dirt logging road that provides access to the JWT. The proposed route follows the JWT around steep slopes to the south of I-90 where the old railroad grade is clearly visible as it rounds a bluff above the South Fork Snoqualmie River. Near the end of the segment, the route passes over Alice Creek. Construction in this area will be in the right-of-way of the trail, with no additional clearing required for construction.

Segment 20
King County
U.S. Forest Service (MBSNF)

MP 48.9 to MP 50.7 **Forest and Recreation.** Segment 20 leaves the JWT and traverses a forested area to the east of Alice Creek down to Tinkham Road. This segment is south of I-90 Exit 42, Tinkham Road. The land uses are forest and recreation. The proposed route follows an old narrow logging road that will require clearing to 30' for construction. A 30' wide corridor will be maintained for aerial observation during operation of the pipeline.

Segment 21
King County
U.S. Forest Service (MBSNF)

MP 50.7 to MP 54.9 **Forest and Recreation.** In Segment 21, the pipeline will be constructed within Tinkham Road, a gravel Forest Service road. No clearing is anticipated for the pipeline in this segment. Land uses are forest and recreation.

Tinkham Campground, a Forest Service campground, is located about one-quarter mile north of the pipeline route on the south side of the Snoqualmie River. Bandera Landing Strip, an emergency air strip maintained by the Forest Service, is located on the north side of the Snoqualmie River east of Tinkham Campground. Segment 21 ends before the parking lot for the Asahel Curtis Interpretive Trail and the Annette Lake trailhead (north of Humpback Creek).

Segment 22
King County
U.S. Forest Service (MBSNF)

MP 54.9 to MP 56.2 **Forest and Recreation.** Segment 22 begins just to the west of the Annette Lake Trailhead parking lot, near the Tinkham Road overpass (I-90 Exit 47). The route ascends the slope crossing Humpback Creek then following a narrow logging road. This segment of existing roadway will require some widening and clearing until it ascends the slope up to the JWT.

Segment 23
King County
U.S. Forest Service (MBSNF)

MP 56.2 to MP 56.7 **Forest and Recreation.** Segment 23 starts at the route's intersection with the JWT. This portion of the trail is wide and is heavily used for recreation as it is one of the primary access points to the Snoqualmie Tunnel. This portion of the route also passes through the site of the former Rockdale railroad camp.

Segment 24
King/Kittitas County
U.S. Forest Service (MBSNF)

MP 56.7 to MP 59.0 **Forest and Recreation.** Segment 24 consists of the part of the route which runs through the former Chicago, Milwaukee, and St. Paul Railroad Tunnel over Snoqualmie Pass. Elevation at the west portal of the tunnel is approximately 2,400'. The pipeline will be buried within the floor of the existing ground surface of the tunnel.

Approximately one-quarter mile east of where the tunnel begins, the Pacific Crest National Scenic Trail crosses north/south over the top of the tunnel, and Ski Acres and Pacific West ski areas are located north and south of the tunnel. The route crosses the King/Kittitas County boundary at approximately MP 57.5, which also forms the boundary between the Mt. Baker-Snoqualmie National Forest and the Wenatchee National Forest.

Segment 25
Kittitas County
U.S. Forest Service
Wenatchee National Forest (WNF)

MP 59.0 to MP 73.35 **Forest and Recreation.** Segment 25 begins at the east portal of the Snoqualmie Tunnel and is near the Hyak exit from I-90 (Exit 54). This segment of the proposed route follows the JWT along the shore of Lake Keechelus, traversing checkerboard lands in the Wenatchee National Forest which alternate ownerships between the U.S. Forest Service and State Park lands. A future pump station is planned where the proposed route intersects Stampede Pass Road (MP 67.1).

The JWT passes through a short tunnel at approximately MP 69.1. It is proposed to route the pipeline around the north side of this tunnel. This area is within a BPA right-of-way and will require clearing of a 60' construction corridor within the BPA corridor.

No clearing for construction will be required for the majority of the route in this segment. Because the trail is currently maintained, there will be no additional requirements for operational maintenance.

Segment 26
Kittitas County

MP 73.35 to MP 75.8 **Forest and Recreation.** Segment 26 leaves the JWT, follows a Puget Sound Energy (PSE) maintenance road for a short distance, crosses Cabin Creek, and then intersects Monahan Road. The route then runs cross-country through an area of recently harvested forest south of Easton State Park and parallel to a Puget Power transmission line right-of-way. Construction clearing of an approximately 400' partially-forested area will be required along this segment. All other clearing will be within the transmission line right-of-way.

Segment 27
Kittitas County

MP 75.8 to MP 98.9 **Forest and Agriculture (dry land farming, rangeland).** Segment 27 continues along the Puget Power right-of-way southwest of the town of Easton. Lake Easton State Park lies within a mile of the route. The route generally parallels I-90, but is several miles to the south. The proposed route follows southeasterly along the Puget Power corridor, which joins a 4-line BPA transmission corridor. The route drops south of the BPA right-of-way at MP 77.9 for approximately .4 miles, and then returns to the northern limit of the BPA right-of-way at MP 79.3. Forest land predominates south of the pipeline route and farmland predominates to the north. The pipeline route crosses to the south side of the BPA right-of-way at MP 80.2, and crosses back to the north side of the right-of-way at MP 84.9 The proposed pipeline route crosses I-90 approximately 1.5 miles east of the Indian John Rest Area.

After crossing under I-90, the route begins the descent into the Upper Yakima River Valley. The proposed route crosses the JWT on the west bank of the Yakima River and State Highway 10 on the east side of the river. Once the route crosses the Yakima River, land use changes to rangeland. Significant crossings include I-90, the Burlington Northern Railroad, and Highway 10. The only major stream crossing is the Yakima River at MP 95.95.

Most of this segment is within existing transmission line corridor, and thus impacts will be limited to clearing within the existing corridor. No pipeline corridor maintenance will be required.

Segment 28
Kittitas County

MP 98.9 to MP 100.40 **Rangeland.** Due to very steep terrain and sensitive oak forest habitat, this segment deviates from the BPA right-of-way by turning south to descend the steep western slope into Swauk Creek. The route crosses Swauk Creek at MP 99.7 and then ascends the eastern side of the Swauk Creek Canyon.

Construction in this segment will require a cleared construction corridor of 60' and a maintained corridor of 30'.

Segment 29
Kittitas County

MP 100.4 to MP 107.7 Agricultural (rangeland). The proposed route rejoins the east/west BPA right-of-way and passes to the northeast of the town of Thorpe. The route crosses Highway 97 near MP 102.7, crosses Green Canyon Road, and then parallels Robinson Road on the north side. The 60' construction corridor will be within the existing right-of-way. After leaving the BPA corridor, this segment ends north of where Robinson Road turns south and becomes Mercer Creek Road.

Segment 30
Kittitas County

MP 107.7 to MP 149.4 Agricultural (rangeland, irrigated farmland). Segment 30 is not within an existing corridor and traverses southeasterly through alternating grazing land and irrigated farmland. The proposed route passes approximately 2 miles northeast of the City of Ellensburg. North of the intersection of Lyons Road and Naneum Road, the proposed pipeline route turns south and crosses through new corridor. The route briefly intersects the JWT at the junction with Kittitas Highway, approximately .75 mile west of the town of Kittitas. The route passes to the northeast of the town's sewage treatment plant.

At the northeast intersection of I-90 (Exit 115) and Badger Pocket Road, a terminal and pump station (Kittitas Terminal) will be constructed on 27 acres that are currently used for irrigated agriculture. Upon exiting the Kittitas Terminal, the pipeline will be reduced to 12".

The proposed route will continue east from the Kittitas Terminal through grazing land, then cross the Highline Canal continuing east and north of I-90 to enter Gingko State Park land on new right-of-way . The proposed route crosses under I-90 approximately 1.5 miles west of the I-90 bridge. The route continues south through Gingko State Park generally parallel to Hunzinger Road and descends to the Columbia River south of Wanapum Dam. Major roads crossed in this segment include Wilson Creek Road, Kittitas Highway, Badger Pocket Road, Hunzinger Road and I-90.

As shown on Figure 2.1-2, other alternative routes would continue east from the Stevens Road crossing (MP 129.9) to the Columbia River

crossing. All of the alternatives cross through open range land and either the YTC or Gingko State Park, or both.

Construction of the pipeline in this segment will require the clearing of a 60' wide construction corridor. In agricultural areas there will be no maintained operation corridor; however, in rangeland a 30' corridor will be maintained.

Segment 31
Kittitas/Grant Counties

MP 149.4 to MP 150 **Columbia River and Rangeland.** Segment 31 consists of the crossing of the Columbia River, which OPL proposes to accomplish using a horizontal directional drill. As shown on Figure 2.1-2 and described in Section 9.1, alternatives to drilling under the Columbia River are crossing over the Wanapum Dam, trenching across north of the I-90 bridge, crossing on the I-90 bridge, or crossing on the Beverly railroad bridge. At the halfway point in the river crossing, the segment enters Grant County.

Segment 32
Grant County

MP 150 to MP 151.85 Rangeland. Segment 32 begins on the east side of the Columbia River and ascends the slopes crossing State Route 243 to the east of Wanapum Village. In this area, a new right-of-way will be established with a 60' construction corridor and an operational corridor of 30'.

Segment 33
Grant/Adams/Franklin County

MP 151.85 To 221.15 **Agriculture (irrigated farmland, grazing).** This segment begins where the pipeline route crosses Beverly Burke Road and runs adjacent to the south side of Beverly Burke Road. A pump station is planned for future construction at approximately MP 154.1 (Beverly-Burke Station). At MP 155, Beverly Burke Road turns to the north, but the proposed pipeline route continues easterly for approximately 3 miles. The route then turns northeasterly, crossing agricultural land, and easterly again to cross under the Royal Branch Canal at MP 161.15. The route crosses the canal again at MP 162.5 and runs parallel to 14 SW Road to the east through rangeland and natural areas.

At MP 168.05, the proposed pipeline route crosses Smyrna Road and enters an industrial area southeast of Royal City . The proposed route then turns to the southeast and runs adjacent to State Highway 26 to MP 181.95, passing through a short section of the Columbia National Wildlife Refuge that is crossed by Highway 26. The route turns south and crosses farmland to approximately MP 183.3, where it crosses Kuhn Road and turns easterly along the base of the Saddle Mountains. In this area, the pipeline will be constructed in rangeland. It crosses the Grant/Adams County line at MP 180.5.

The proposed route runs adjacent to local farm roads to approximately MP 186.9 where it turns south. Here, the proposed route is adjacent to and parallel with an existing powerline corridor through irrigated agricultural land, and again runs adjacent to farm roads. A pump station will be constructed in the future at MP 189.15, in agricultural land approximately 2,200' north of Highway 24. The proposed pipeline crosses Highway 24 at MP 189.9; this point is also near the boundary between Adams and Franklin counties.

At MP 191.9, the proposed route turns southeast, continuing through range and agricultural land. At MP 193.7, the route crosses the Wahluke Branch Canal and parallels the Burlington Northern Railroad tracks. The proposed route will be constructed adjacent to Hendrikson Road from MP 194.9 to MP 196.3, then parallels the railroad in a southerly direction to MP 198.85.

From MP 198.85, the route turns southeast and at MP 199.75 crosses a wetland area associated with Eagle Lakes. The proposed route continues southeast to MP 202.45, where it enters a small industrial area, crosses Road 170 just east of Basin City, and turns south adjacent to Glade North Road. The route crosses the Potholes Canal at MP 206.2 and the Eltopia Canal at MP 209.2.

At MP 210.8, the proposed route departs from Glade North Road to avoid an agricultural/industrial area and goes south through agricultural fields; it intersects Glade North Road (MP 212.8) and runs parallel to it to MP 221.15.

Most of the pipeline construction in this segment will be in new right-of-way. While adjacent to roads, railroads, and fence lines, the route is not

within existing corridors. Construction will require clearing a 60' wide corridor and, where possible, maintaining a 30' maintenance corridor. However, in many parts of this segment, the route is on agricultural land, and in such cases there will be no maintained corridor.

Major road crossings, and roads adjacent to which construction will occur, include Smyrna Road, Highway 26, Lower Crab Creek Road, Kuhn Road, Highway 24, Hendricks Road, Sage Hill, County Road 170, Wahluke Road, Glade North Road, West Klamath Road, Russell Road, Juniper Road, Ironwood Road, and Eltopia West Road.

Segment 34
Franklin County

MP 221.15 to MP 227.5 **Agriculture.** Segment 34 begins west of Esquatzel Coulee, crosses Selph Landing Road and joins a BPA transmission line right-of-way. The proposed route crosses Highway 395 at MP 223.25. The segment ends where the route leaves the BPA right-of-way at MP 227.5.

Segment 35
Franklin County

MP 227.5 to MP 231.04 **Agriculture, Urban Industrial.** Segment 35 begins where the route leaves the BPA right-of-way. The corridor traverses agricultural and industrial land within the city limits of Pasco to the route termination at the Northwest Terminalling bulk storage facility west of Highway 12 and adjacent to the Snake River. Road crossings in this segment include US Highway 12 and Pasco-Kahlotus Road.

2.1.3 PUMP STATIONS AND TERMINAL

2.1.3.1 Pump Stations

Six pump stations will be located along the route in Segments 1 (Thrasher), 16 (North Bend), 25 (Stampede), 31 (Kittitas), and 34 (Beverly-Burke, Othello) (see Figure 2.1-1). Each pump station, except for the Thrasher Station, will require approximately 1 to 2 acres, although only part of each site will be cleared. The Thrasher Pump Station will be located on approximately 3.7 acres.

The Thrasher Station (MP 0.0) will be located partially within existing cleared PSE right-of-way, and less than an acre will require clearing for the pump station. The topography of the site area is gently rolling,

with the site located at an elevation of 350'. Surrounding land use is rural residential.

The North Bend Station (MP 35.25) will be located in a field previously used for grazing adjacent to the Cedar Falls Trail right-of-way. Surrounding land use is urban and rural residential.

The Stampede Station (MP 67.1) will be located in a partially forested meadow at an elevation of approximately 2,400'. The terrain is relatively flat. Minimal clearing will be required for construction of the pump station. Although the Stampede Station may not be constructed during the initial pipeline construction, the block valves that are part of each station will be installed. The proposed site is adjacent to an AT&T fiber optics regeneration station.

The Kittitas Station (MP 124) will be located within the Kittitas Terminal site on land which is currently used for irrigated agriculture.

The Beverly-Burke Station (MP 154.1) will be located in an area of rangeland that is not currently cultivated. The site is at an elevation of about 1,100'. This pump station will not be part of the initial construction; however, the block valves will be installed at the time of initial pipeline construction.

The Othello Station (MP 189.85), located at an elevation of about 1,200', will be located in agricultural land that is currently being farmed. This pump station will not be part of the initial construction; however, the block valves will be installed as part of the pipeline construction.

2.1.3.2 Kittitas Terminal

The Kittitas Terminal will occupy approximately 27 acres north of Interstate 90 and east of Badger Pocket Road. The land is currently used for irrigated agriculture.

2.1.4 PROMINENT GEOGRAPHIC FEATURES

The topography of the western portion of the alignment consists of relatively gently rolling uplands and valley crossings, transitioning to the lower sidewalls of a U-shaped mountain valley to the Snoqualmie Pass area. The elevation of the first portion of the alignment is several hundred feet above mean sea level (MSL), climbing to approximately 2,500' above MSL at Snoqualmie Pass. The portion of the alignment from Snoqualmie Pass to the Ellensburg area generally follows the bases of mountains in U-shaped valleys, before climbing onto the plateau on which Ellensburg is situated.

The topography of the plateau section is generally low- to moderate- relief alluvial fan with elevation ranging from 2,200' above MSL near the west end of the valley to 1,600' above MSL near Kittitas. Several short, relatively steep sections of the route are located near terraces generally less than 1,000' in length.

East of Kittitas, the proposed alignment follows a series of flat-topped ridges with incised drainages before descending to the Columbia River. Elevations of the ridge tops are approximately 2,100' above MSL at the western end of this section, increasing to 2,500' before entering Ryegrass Coulee, and decreasing to 600' near Getty's Cove on the shore of the Columbia River. The route continues southward along the western side of the Columbia River to a flat river terrace downstream of Wanapum Dam. Up to 200' of relief is present from ridge top to coulee bottom in this section.

The proposed alignment across the Columbia River begins at the flat river terrace. OPL proposes to cross the river with a directionally drilled tunnel beneath the river. From the flat river terrace on the east side of the river, the proposed route climbs a 17 percent slope to an elevation of approximately 900' above MSL.

From the river crossing eastward, the alignment follows a relatively flat bench above the lower Crab Creek channel. The route climbs slowly to a high of 1,160' above MSL west of Royal City, and then descends to a low of approximately 600' where it crosses the Crab Creek drainage outside of Corfu, and the climbs to approximately 900' where it crosses the Lower Crab Creek before continuing south to an elevation of approximately 1,050'.

From this point, the alignment turns east and follows the base of the Saddle Mountains. The topography of this section is irregular, but of generally moderate relief. Elevations range from 600 to 800' above MSL before the alignment turns south to climb a steep slope to approximately 1,100' above MSL on the north slope of the Saddle Mountains.

The alignment traverses the north slope of the Saddle Mountains, climbing to an elevation of 1,300' MSL. The slope which this section crosses is a moderately steep north facing flank of the Saddle Mountains and represents the only mountain crossing for the alignment east of the Cascades. The alignment turns south at a pass in the range southwest of Othello, and drops down the south or Wahluke Slope, remaining at elevations of 1,100 to 1,200'.

From this point to the south, the alignment will cross a relatively flat plain sloping gently south to the Columbia and Snake Rivers, which is dissected by a series of southwestward trending bedrock channels. The Othello and Esquatzel Channels represent floodways of the late Pleistocene Bretz Floods. The channels are steep-sided, with irregular but generally low-relief bottoms. Elevation change from approximately 900' on the plain between the channels to less than 750' in the channel bottoms. The elevation at the south terminus of the pipeline alignment is approximately 400' above MSL.

2.1.5 TYPICAL GEOLOGICAL AND CLIMATOLOGICAL CHARACTERISTICS

The following summarizes the geological and climatological characteristics of the site. For a more complete discussion of site geology, please see Section 3.1 Earth.

2.1.5.1 Geology

The geology of the region consists of deposits which are the direct or indirect result of the glaciation period that affected North America during the Pleistocene epoch (2 million years before present) overlying the region's bedrock. These deposits of generally unconsolidated sands, silts, and gravels occur nearly ubiquitously in the region. West of the Cascade Range, the deposits are generally characterized by glacial drift and reworked glacial deposits overlying bedrock. East of the mountains, the deposits are generally water or wind deposited glacial debris. Underlying the surficial deposits at variable depths across the proposed pipeline alignment are Mesozoic or younger volcanic rocks associated either with the Cascade volcanic chain or the flood basalts of the Columbia Plateau.

Tectonic Setting

The tectonic setting of the Pacific Northwest for the last 60 million years has been dominated by collisions between the largest tectonic elements of the earth known as plates. These plates of solid rock float on semi-plastic rock of the earth's interior and move in response to large, planet-scale currents in the mantle. Interactions between the plates result in the forces which shape the earth's surface. The collision between the oceanic plate of the northern Pacific (Juan de Fuca Plate) and the continental plate of North America results in a subduction zone which has given rise to the present morphology of Washington State and is the origin of its current seismic activity.

Soils

The soils for the portion of proposed alignment west of Ellensburg generally are associated with the weathering of glacial till and bedrock parent materials, and material deposited within alluvial valleys. The remainder of the alignment consists primarily of wind-blown glacial soils (loess) overlying bedrock parent materials, soils derived from weathered parent bedrock, and pre-historic flood deposits. The soils range from clayey silt and sand to gravel.

2.1.5.2 Climate

Climate characteristics of the project area are generally described below for five physiographic provinces: the Puget Basin, West Cascades, East Cascades, Columbia Basin Hills, and Columbia Basin Flat. Section 3.2.3 CLIMATE, VISIBLE PLUMES, AND VISIBILITY IMPAIRMENT provides more detailed information on climate for each of the regions and a figure (Figure 3.2-2) showing a climate cross section for the entire route.

Puget Basin

The Puget Basin has a maritime climate characterized by wet, mild winters and cool, relatively dry summers. Between 75 and 85 percent of the annual precipitation occurs between October 1 and March 31, mostly as rain (Franklin and Dyrness, 1973). Most precipitation in the region is cyclonic, resulting from low-pressure systems that approach from the Pacific Ocean on dominant westerly winds. Storm tracks shift to the north during the summers, and at that time high-pressure systems bring fair, dry weather.

West Cascades

The contemporary climate of the West Cascades is characterized by sharp temperature and precipitation gradients. To a certain extent, the Cascade Mountain peaks create unique microclimates that correspond with variations in elevation, slope, and aspect (Jackson 1993). These sources of diversity make a characterization of general climate for the West Cascades difficult.

East Cascades

The north-south trend of the Cascades provides an effective orographic barrier to the movement of maritime and continental airmasses and contributes to sharp climate contrasts between the east and west sides of the mountains. The eastern slopes receive less precipitation than areas west of the Cascade crest. Portions of the East Cascades receive precipitation in excess of 60", although 32 to 48" annually is typical for the region. Precipitation during the winter months usually arrives in the form of snow, and averages 200" per year, with an increase in accumulation with elevation (Franklin and Dyrness, 1973; Jackson, 1993). Precipitation totaling 0.08" or more within a 24-hour period occur approximately 120 to 180 days out of each year (Jackson, 1993).

Mean temperatures for the region range from a minimum of 10 degrees Fahrenheit (F) in January, to 80 degrees F in July (Franklin and Dyrness 1973; Jackson 1993). The onset of the killing frost in fall generally begins at the end of August. Frost and snow can last as late as the end of May in the East Cascades, resulting in approximately 120 snow-free days per year (Jackson, 1993).

Columbia Basin Hills

The Columbia Basin Hills province has a more temperate climate than that of the adjacent Columbia Basin Flat. The higher elevations of the hills and the region's proximity to the Cascades produces a temperature range lacking the extremes of the central Columbia Basin; the mean January minimum temperature in the hills is 20 degrees F, and the mean July maximum is 80 degrees F. Annual precipitation ranges from 8 to 16". Snowfall produces 24 to 60" annually, typically restricted between the end of September and late May (Franklin and Dyrness, 1973; Jackson, 1993).

Columbia Basin Flat

Climatically, the Columbia Basin Flat may be described as having an arid to semiarid climate with low precipitation, warm-to-hot, dry summers and relative cold winters. The orographic barrier created by the Cascades to the west of the region is the principal reason this climatic situation exists. When air passes over the summits of the range, the airflow is diverted downward, compressed, and warmed, and precipitation is inhibited. In general, the results is large daily and seasonal temperature fluctuations, low relative humidity, and irregular rainfall (Lynott, 1966).

Along the Columbia River east of the gorge, average temperatures range between 20 and 90 degrees F in January and July, respectively. Precipitation falls mainly between November and March, and averages about 8 to 16". Winters in the Columbia Basin can be quite severe. Precipitation is usually in the form of snow. Strong winds blow across the plateau in response to pressure system movements. Although these statements about the climate of the basin are generally applicable, it is important to remember that this is a very large area (over 8,000,000 acres) and local variations occur in response to differences in elevation and exposure.

2.1.6 LAND USE PLANS AND ZONING ORDINANCES

This section identifies the relevant local, state, and federal jurisdictions which overlay the project site and briefly describes their land use planning documents. A full description of these jurisdictions and the applicable comprehensive land use plans, zoning ordinances, shoreline management master programs, and other land use policies and programs is included in Section 5.1.1.3 Land and Shoreline Use. Section 1.6 provides a listing of pertinent federal, state, and local permit requirements.

The proposed Cross Cascade Pipeline route crosses the boundaries of six counties and four cities within Washington State. These local jurisdictions include the counties of Snohomish, King, Kittitas, Grant, Adams, and Franklin, and the cities of Snoqualmie, North Bend, Kittitas, and Pasco. Land use decisions in these counties and cities are made pursuant to Comprehensive Plans, Zoning Ordinances, and Shoreline Management Master Programs. In general, Comprehensive Plans contain the official policy guidelines for decisions regarding the future development of an area, such as a county or a city. Zoning ordinances are regulatory documents which designate land areas as specific land use zones, and specify uses that are permitted within each zone. Many local jurisdictions use zoning ordinances as a tool to implement the broader goals and policies contained in their Comprehensive Plans. Shoreline Management Master Programs contain specific policy guidelines governing land use activities in recognized shoreline areas, pursuant to the Washington State Shorelines Management Act of 1971.

The proposed pipeline route crosses lands managed by several state and federal agencies. These agencies include the following: at the state level, the Department of Fish and Wildlife and the Parks and Recreation Commission; and at the federal level, the Forest Service, the Bureau of Land Management, the Bonneville Power Administration, the Bureau of Reclamation, and the Fish and Wildlife Service. These state and federal agencies typically make land use decisions pursuant to adopted land use policies and/or regulations

contained in agency plans or management manuals or codified into law, e.g., the Code of Federal Regulations (CFR) at the federal level, and the Washington Administrative Code (WAC) at the state level. Petroleum pipelines and pump stations are permitted by zoning in King and Snohomish Counties, and are not specifically identified in the land use codes for Kittitas, Grant, Adams and Franklin Counties. However, as there are existing pipelines in each of these counties, these uses will generally not be inconsistent nor interfere with existing uses and other permitted uses.

As previously stated, a full description of these agencies and their applicable land use planning documents is included in Section 5.1 Land and Shoreline Use.

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